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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/378,108	08/20/1999	OLAF DICKER	99P7740US	8733

7590 12/10/2002

SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
186 WOOD AVENUE SOUTH
ISELIN, NJ 08830

EXAMINER

FERRIS, DERRICK W

ART UNIT	PAPER NUMBER
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2663

DATE MAILED: 12/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/378,108

Applicant(s)

DICKER ET AL.

Examiner

Derrick W. Ferris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. **Claims 1-22** as amended are still in consideration for this application. Applicant has added claims 21-22.
2. Examiner withdraws nonstatutory double patenting since applicant has filed a terminal disclaimer with respect to Office action filed 7/16/02 (in reference to line item 3-4).
3. Examiner withdraws the obviousness rejections for *Taki et al.* in view of *Brennan, Jr.* for claims 1-18 and 20 (in reference to line item 6); and *Taki et al.* in view of *Magana et al.* for claims 1-20 (in reference to line item 7). Examiner notes that the *Taki et al.* reference taught in combination may not be clear on selecting additional channels since this overall process is done at random as acknowledged by applicant. Since there is more than one way to evaluate hopping strategies, examiner notes this is not implicitly taughtⁱ and thus withdraws the rejections.
Examiner notes these rejections are replaced with a new reference clarifying this point thus making this new rejection non-final. When reading this rejection please note that examiner has taken a reasonable but broad interpretation of the selection process (especially with additional channels). Examiner notes that where applicable examiner has gone back to applicant's specification (and drawings) to seek further clarification on some of the recited features of the claims with respect to selecting additional channels.

Claim Rejections - 35 USC § 112

4. **Claim 15** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear from step (d) on what process is repeated (e.g., is step (c) repeated or

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are steps (a-c) repeated). For the purpose of rejection, examiner assumes that step (c) is repeated. Examiner notes this is also unclear with respect to figure 5 steps 58 and 62 (i.e., which channel is a next channel).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,009,332 to *Haartsen*.

An assumption was made in order to overcome the 112-second paragraph rejection stated previously.

As to **claim 1**, *Haartsen* generally teaches control logic for (1) establishing a plurality of individual communication channels [column 7, lines 59-62; column 13, lines 1-16 (in reference to applicant's figure 2)]; (2) associating each channel with a unique channel frequency [column 10, lines 12-31]; (3) selecting a first unique channel frequency to be used for the first channel between data stations [column 11, lines 13-20]; and (4) responding in the second data station to receive the information on the plurality of communication channels [column 13, lines 1-16]. In addition, with respect to (3), *Haartsen* teaches a broad but reasonable interpretation of selecting a first unique carrier frequency to be used for the first channel in step (b). For example, during a call setup a list and hop sequence (e.g., list 45A shown in figure 4) indicates in which order the

frequency carriers in the hop list are used [column 11, lines 13-20]. Noted is that this initial selection (i.e., described by *Haartsen* as a first step [column 4, lines 15-29]) can depend on various techniques as is well known in the art such as an ID number, serial number, or seed value when used on a generic frequency list 36 [column 8, lines 4-29; column 11, lines 17-20; figure 3]. (With respect to selection for a first unique carrier frequency examiner also emphasizes applicant's specification on page 8 lines 20-26 noting processes well known in the art including interference.) Hence *Haartsen* discloses selecting a unique frequency or set of frequencies for a first pass or step.

At potential issue with the applicant is the interpretation of "determining parameters relating to a spectral separation between each of the channels; and selecting unique channel frequencies for the remainder of the plurality of channels in response to the determined parameters". Examiner notes that *Haartsen* broadly teaches this such that any differences in selecting carrier frequencies for the remainder channels (step 58, 60 and 62 on applicant's figure 5) would have been obvious to a skilled artisan prior to applicant's invention. Specifically and in support of this prima facie case of obviousness, *Haartsen* discloses using the predetermined parameters (e.g., RSSI) to reorder a generic list 36 (i.e., in response to the predetermined parameters) such that a new set of frequencies within the generic list 36 (i.e., selecting additional unique carrier frequencies) may be used for frequency hopping (i.e., the remainder of the plurality of channels) [column 4, lines 30-64]. These lists are presented per time slot ordering as lists 45a, b, and c shown in figure 4 by way of example. Thus these lists are reordered based on a predetermined parameter (i.e., the averaging function using RSSI) creating a broad but

reasonable interpretation of “spectral separation” between channels. Furthermore, as a second selected frequency in a frequency hopping scheme uses a different carrier frequency in addition to being selected as a candidate based on interference, examiner notes that the frequencies have “spectral separation” based on applicant’s limited description provided on page 8, lines 11-26 and page 10, lines 7-19 (with respect to step 58 shown in applicant’s figure 5) for “spectral separation” (i.e., F_2 is selected from a different subset of F_1 since F_1 and F_2 are different carrier frequencies). Also not clearly presented in the patent is a cordless system. *Haartsen* in general discloses a private radio system [column 1, lines 29-32]. Examiner notes that it would have been obvious to a skilled artisan prior to applicant’s invention to use a cordless system with the teachings of *Haartsen*. Examiner notes that motivation for doing so is that the principles in general apply to FDMA and FDMA/TDMA systems such as that found in a cordless system.

As to **claim 2**, *Haartsen* is silent with respect to the type of channels [column 7, lines 55-67] only that the channels could be a frequency in a FDMA system or a frequency/time slot in a FDMA/TDMA system.

Examiner notes that it would have been obvious to a skilled artisan prior to applicant’s invention to use duplex channels. Examiner notes support is provided since the patent discloses using both uplink and downlink measurements with respect to a determining parameter (i.e., an averaging function). Thus both directions of the channel could be used for a duplex channel.

As to **claim 3**, the patent in general discloses that the original frequencies (i.e., the generic list) can use an offset in general using a reuse plan [column 7, lines 64-67].

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Furthermore, applicant acknowledges such plans are well known in the art [page 8, lines 20-26].

As to **claim 4**, the reasoning in the rejection for claim 1 contains a broad but reasonable interpretation of optimal spectral spacing (based on interference).

As to **claim 5**, the patent discloses using a frequency hopping scheme in general.

As to **claim 6**, the reasoning in the rejection for claim 1 contains selecting candidate frequencies based on interference. Since these candidates are sorted, the selection is also based on minimizing the loss of information.

As to **claim 7**, *Haartsen* generally teaches steps (a), (b), and (c). Specifically, step (a) is taught since *Haartsen* discloses frequency hopping between two stations thus using a plurality of individual communication channels [column 7, lines 59-62; column 13, lines 1-16 (in reference to applicant's figure 2)]. *Haartsen* teaches a broad but reasonable interpretation of selecting a first unique carrier frequency to be used for the first channel in step (b). For example, during a call setup a list and hop sequence (e.g., list 45A shown in figure 4) indicates in which order the frequency carriers in the hop list are used [column 11, lines 13-20]. Noted is that this initial selection (i.e., described by *Haartsen* as a first step [column 4, lines 15-29]) can depend on various techniques as is well known in the art such as an ID number, serial number, or seed value when used on a generic frequency list 36 [column 8, lines 4-29; column 11, lines 17-20; figure 3]. (With respect to selection for a first unique carrier frequency examiner also emphasizes applicant's specification on page 8 lines 20-26.) Hence *Haartsen* discloses selecting a unique frequency or set of frequencies for a first pass or step. Also taught by *Haartsen* is

determining the interference for a channel by using an averaging function (such as using the received signal strength indication RSSI as a measurement [column 13, lines 43-64]). Hence another broad but reasonable interpretation of determining parameters to achieving a maximum throughput of information over a channel is taught by the patent.

At potential issue with the applicant is the interpretation of step (d). Step (d) states: “selecting additional unique carrier frequencies to be used for the remainder of the plurality of channels in response to the determined parameters”. Examiner notes that *Haartsen* broadly teaches this such that any differences in selecting carrier frequencies for the remainder channels (step 58, 60 and 62 on applicant’s figure 5) would have been obvious to a skilled artisan prior to applicant’s invention. Specifically and in support of this prima facie case of obviousness, *Haartsen* discloses using the predetermined parameters (e.g., RSSI) to reorder a generic list 36 (i.e., in response to the predetermined parameters) such that a new set of frequencies within the generic list 36 (i.e., selecting additional unique carrier frequencies) may be used for frequency hopping (i.e., the remainder of the plurality of channels) [column 4, lines 30-64]. These lists are presented per time slot ordering as lists 45a, b, and c shown in figure 4 by way of example. In addition, with respect to applicant’s generic remark on page 6 (Applicant’s remarks filed 10/21/02) *Haartsen* discloses “a maximum throughput over the channels by ordering the channels and then selecting the best candidates based on the least interference [column 8, lines 49-67]. Also not clearly presented in the patent is a cordless system. *Haartsen* in general discloses a private radio system [column 1, lines 29-32]. Examiner notes that it would have been obvious to a skilled artisan prior to applicant’s invention to use a

cordless system with the teachings of Haartsen. Examiner notes that motivation for doing so is that the principles in general apply to FDMA and FDMA/TDMA systems such as that found in a cordless system.

As to **claim 8**, see the same reasoning behind the rejection for claim 6. As the candidate lists are sorted by interference, examiner notes a broad but reasonable interpretation of maximum throughput (see further explanation in rejection for claim 7).

As to **claim 9**, as noted in the rejection for claim 7 error rates (e.g., RSSI) are used in selecting a channel.

As to **claim 10**, see the same reasoning behind the rejection for claim 6.

As to **claim 11**, as the frequency lists can be determined by time interval (TN shown in figure 4 for time slot interval) examiner notes a reasonable but broad interpretation of predetermined intervals of time.

As to **claim 12**, examiner notes the carrier frequencies selected as mentioned in the rejection for claim 7 are unique.

As to **claim 13**, examiner notes the selection of frequencies are based on interference demonstrating a broad but reasonable interpretation of spectral separation (see further explanation in rejection for claim 1 or 15).

As to **claim 14**, examiner notes that the candidate lists presented by *Haartsen* could be considered tables.

As to **claim 15**, *Haartsen* generally teaches steps (a), (b), and (d). Specifically, step (a) is taught since *Haartsen* discloses frequency hopping between two stations thus using a plurality of individual communication channels [column 7, lines 59-62; column

13, lines 1-16 (in reference to applicant's figure 2)]. *Haartsen* teaches a broad but reasonable interpretation of selecting a first unique carrier frequency to be used for the first channel in step (b). For example, during a call setup a list and hop sequence (e.g., list 45A shown in figure 4) indicates in which order the frequency carriers in the hop list are used [column 11, lines 13-20]. Noted is that this initial selection (i.e., described by *Haartsen* as a first step [column 4, lines 15-29]) can depend on various techniques as is well known in the art such as an ID number, serial number, or seed value when used on a generic frequency list 36 [column 8, lines 4-29; column 11, lines 17-20; figure 3]. (With respect to selection for a first unique carrier frequency examiner also emphasizes applicant's specification on page 8, lines 20-26 noting processes well known in the art including interference.) Hence *Haartsen* discloses selecting a unique frequency or set of frequencies for a first pass or step. Also step (d) is taught for various other channels using a broad but reasonable interpretation of the claim (examiner also notes the recited feature in light of applicant's specification is also very vague with respect to step 62 shown in figure 5 and as described on page 10, lines 28-33 and page 11, lines 1-6).

At potential issue with the applicant is the interpretation of step (c). Step (c) states: "determining parameters relating to a spectral separation required for the next one of the channels". Examiner notes that *Haartsen* broadly teaches this such that any differences in selecting carrier frequencies for the remainder channels (step 58, 60 and 62 on applicant's figure 5) would have been obvious to a skilled artisan prior to applicant's invention. Specifically and in support of this prima facie case of obviousness, *Haartsen* discloses using the predetermined parameters (e.g., RSSI) to reorder a generic list 36 (i.e.,

in response to the predetermined parameters) such that a new set of frequencies within the generic list 36 (i.e., selecting additional unique carrier frequencies) may be used for frequency hopping (i.e., the remainder of the plurality of channels) [column 4, lines 30-64]. These lists are presented per time slot ordering as lists 45a, b, and c shown in figure 4 by way of example. Thus these lists are reordered based on a predetermined parameter (i.e., the averaging function using RSSI) creating a broad but reasonable interpretation of “spectral separation” between channels. Furthermore, as a second selected frequency in a frequency hopping scheme uses a different carrier frequency in addition to being selected as a candidate based on interference, examiner notes that the frequencies have “spectral separation” based on applicant’s description provided on page 8, lines 11-26 and page 10, lines 7-19 (with respect to step 58 shown in applicant’s figure 5) for “spectral separation” (i.e., F_2 is selected from a different subset of F_1 since F_1 and F_2 are different carrier frequencies). Also not clearly presented in the patent is a cordless system. *Haartsen* in general discloses a private radio system [column 1, lines 29-32]. Examiner notes that it would have been obvious to a skilled artisan prior to applicant’s invention to use a cordless system with the teachings of *Haartsen*. Examiner notes that motivation for doing so is that the principles in general apply to FDMA and FDMA/TDMA systems such as that found in a cordless system.

As to **claim 16**, see the same reasoning behind the rejection for claim 13 with respect to optimal spectral separation.

As to **claim 17**, see the same reasoning behind the rejection for claim 6.

As to **claim 18**, see the same reasoning behind the rejection for claim 9.

As to **claim 19**, see the same reasoning behind the rejection for claim 2.

Examiner notes that the reference is silent to time division duplex (TDD) but it would have been obvious to a skilled artisan prior to applicant's invention to use this base on the same reasoning for using a duplex channel as mentioned in the rejection for claim 2.

Furthermore examiner acknowledges applicant's admission that TDD systems are well known in the art [page 1, lines 12-14].

As to **claim 20**, *Haartsen* discloses selecting frequency hop channels for different time slots (shown in figure 4) thus showing a broad but reasonable interpretation of performing at regular intervals of time.

As to **claims 21**, see the same reasoning behind the rejection for claim 1 or claim 15 with respect to spectral separation. Again, with respect to the *Haartsen* reference, emphasis is placed on selecting "at least one unique channel frequency for the remainder of the plurality of channels" based on a broad but reasonable interpretation of the generic list which later becomes the candidate list and DHS list for selecting the remainder of frequencies using the lists 45 (shown in figure 4).

As to **claim 22**, see the same reasoning behind the rejection for claim 7 with respect to maximum throughput. Again, with respect to the *Haartsen* reference, emphasis is placed on selecting "at least one unique channel frequency for the remainder of the plurality of channels" based on a broad but reasonable interpretation of the generic list which later becomes the candidate list and DHS list for selecting the remainder of frequencies using the lists 45 (shown in figure 4).

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Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (703) 305-4225.

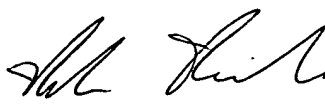
The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (703) 308-5340. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

Derrick W. Ferris
Examiner
Art Unit 2663

DWF 
December 4, 2002


MELVIN MARCELO
PRIMARY EXAMINER

ⁱ Chiani et al. 'Frequency and Interference Diversity in Slow Frequency Hopping Multiple Access Systems' teaches at least two approaches using either cyclic or pseudo-random hopping strategies on page 650.